

What is claimed is:

1. A method comprising a multistep process for recovering one or more products from a solution containing one or more components selected 5 from the group consisting of betaine, erythritol, inositol, sucrose, mannitol, glycerol, amino acids and mixtures thereof by using chromatographic separation comprising at least one step, where a weakly acid cation exchange resin is used for the chromatographic separation.
2. The method of claim 1 wherein the solution to be treated is a 10 sugar beet derived process solution.
3. The method of claim 2 wherein the sugar beet derived process solution is vinasse, molasses or betaine molasses.
4. The method of claim 1 wherein the product to be recovered is selected from the group consisting of betaine, erythritol, inositol, sucrose, 15 mannitol, glycerol, amino acids and mixtures thereof.
5. The method of claim 1 wherein the product is betaine.
6. The method of claim 1 wherein the product is inositol.
7. The method of claim 1 wherein the product is mannitol.
8. The method of claim 1 wherein at least one column or a part of 20 a column contains a weakly acid cation exchange resin.
9. The method of claim 1 wherein at least one column or a part of a column contains a strongly acid cation exchange resin
10. The method of claim 1 wherein the weakly acid cation exchange resin is an acrylic resin.
- 25 11. The method of claim 10 wherein the acrylic resin is derived from the group consisting of methyl acrylate, ethyl acrylate, butyl acrylate methyl methacrylate and acrylonitrile or acrylic acids or mixtures thereof.
12. The method of claim 11 wherein the resin is in the form selected from the group consisting of Na^+ , K^+ , H^+ , Mg^{2+} and Ca^{2+} .
- 30 13. The method of claim 12 wherein the resin is in Na^+ and/or K^+ form.
14. The method of claim 10 wherein the resin is crosslinked with divinyl benzene (DVB).
- 35 15. The method of claim 14 wherein the crosslinking degree of the resin is 3 to 8 % by weight.

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16. The method of claims 1 wherein the eluant used in the chromatographic separation is water.

17. The method of claim 1 comprising feeding the process solution to a first chromatographic column containing a weakly acid cation exchange resin and then feeding a fraction from the first chromatographic column to a second chromatographic column containing a strongly acid cation exchange resin.

18. The method of claim 1 comprising feeding the process solution to a first chromatographic column containing a strongly acid cation exchange resin and then feeding a fraction from the first chromatographic column to a second chromatographic column containing a weakly acid cation exchange resin.

19. The method of claim 18 comprising feeding a fraction from the second chromatographic column to a third chromatographic column containing weakly acid cation exchange resin and feeding a fraction from the third chromatographic column to a fourth chromatographic column containing weakly acid cation exchange resin

20. The method of claim 1 wherein a concentration or filtration unit is arranged between the chromatographic columns.

21. The method of claim 17 wherein prior to feeding the fraction to the next chromatographic column said fraction is concentrated by evaporation.

22. The method of claim 18 wherein, prior to feeding the fraction to the next chromatographic column said fraction is concentrated by evaporation.

23. The method of claim 19 wherein, prior to feeding the fraction to the next chromatographic column said fraction is concentrated by evaporation.

24. The method of claim 20 wherein, prior to feeding the fraction to the next chromatographic column said fraction is concentrated by evaporation.

25. The method of claim 1 wherein the multistep process further comprises crystallization, ion exchanger precipitation.

26. The method of claim 1 wherein the temperature of the eluent used in the chromatographic separation is between 10 °C and 95 °C.

27. The method of claim 26 wherein the temperature of the eluent is between 65 °C and 95 °C.

28. The method of claim 1 wherein the particle size of the weakly acid cation exchange resin is 10 to 2000 µm.

29. The method of claim 28 wherein the particle size of the weakly acid cation exchange resin is 100 to 400 μm .

30. The method of claim 1 wherein the pH of the feed solution is from 6 to 11.

5 31. The method of claim 30 wherein the pH of the feed solution is from 9 to 11.

32. The method of claim 1 wherein the chromatographic separation is a batch process.

10 33. The method of claim 1 wherein the chromatographic separation is a simulated moving bed process.

34. The method of claim 33 wherein the simulated moving bed process is a sequential process.

35. The method of claim 33 wherein the simulated moving bed process is a continuous process.

15 36. The method of claim 34 where weakly acid cation exchange resin is used in at least one column.

37. The method of claim 35 where weakly acid cation exchange resin is used in at least one column.

20 38. The method of claim 34 where strongly acid cation exchange resin is used in at least one column.

39. The method of claim 35 where strongly acid cation exchange resin is used in at least one column.

25 40. The method of claim 1 comprising recovering betaine from a first and inositol, erythritol and mannitol from a second chromatographic column.

41. The method of claim 1 further comprising isolating betaine, inositol, erythritol, mannitol and glycerol by crystallization.

42. The method of claim 1 comprising recovering a sucrose fraction.

30 43. The method of claim 42 comprising separating amino acids and/or betaine from the sucrose fraction.